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ABSTRACT

Based on the INSDOC experience, this document examines the types of information institutions emerging in India and the varied types of manpower required to organize and manage information services in this changing context. Following a discussion of the current situation and an enumeration of the different categories of information professionals now active, a rough parameter for delimiting information science with a specific focus on service is presented. Information science is examined as an intersection of four distinct areas: subject knowledge, information handling, information technology, and management. The curriculum of the INSDOC training course leading to an Associateship in Information Science is then examined on the basis of the philosophy and approach just outlined. The course contents and syllabus of the course are given in some detail. (Author/THC)

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CURRICULUM DEVELOPMENT IN THE CHANGING CONTEXT OF INFORMATION: ISDOC EXPERIENCE

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Abstract

Examines the types of information institutions emerging and the varied nature of manpower required to organize and manage information services in the changing context. Enumerates the different categories of information professionals. Fixing a rough parameter for delimiting information science with a specific focus on service, considers information science as an intersection of four distinct areas. Examines the INSDOC course on the basis of this philosophy and approach. The course contents and the syllabus of the Insdoc's course are given in some detail. Concludes that the main requirement for designing a curriculum is that it should meet a specific need in a given context. This would naturally necessitate a dynamic and flexible approach.

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0 Introduction

'Putting knowledge to work' to achieve socio-economic development is a major objective of every nation. This task is accomplished by a variety of institutions, in whose activities, information/knowledge is a vital component. Institution building, is an essential process of establishing and transforming an organization into an integrative organic part of the community in a way that will help the organization to play a pro-active role and in projecting new values and become an agent of change in the community.(5) Institutions invariably operate through human beings, whose performance will make or mar them. Development, therefore, is not merely development of things but development of people, their interest, resourcefulness, and capabilities resulting in increased productivity. Competence gives confidence, self-reliance and a sense of value of human dignity.

1 Information Institution

Of different types of information institutions that have been operating for the last three or four decades, the library has been the oldest, having a longer history, dating back to earlier centuries. Libraries have been agencies that have reflected the

social milieu to a certain degree, responding in various measures to the changing trends of the social, economic, educational, scientific, technological and cultural environments. In India, the growth of academic and special libraries and to a lesser extent, public libraries, reflects the nature of changes that have taken place after the dawn of independence in 1947. Besides libraries, a variety of institutions have also sprung up, whose stock in trade are knowledge, literature and information, evolved out of user needs and demands--actual and potential. Some of the institutions, presently operating in India, are documentation and information centres, a few information analysis centres, data banks, archives and some depository centres. The trends now seen in western countries of new service agencies like information brokers, consultancies, intermediaries etc., are slowly but surely emerging in India. Information industries that have made remarkable progress in western countries, offering a variety of information services, pursuing a very commercial approach, are yet to catch up in India, but bound to develop sooner or later.

2 Some facets of manpower development

Human resources that provide leadership, design and development capabilities, technical skills of

different kinds, management insights etc. backed up by subject specialization, have to be systematically built up in the information field if our goal of 'putting knowledge to work' has to materialise. Some of the issues that confront manpower development at present are:

* Manpower assessment in terms of types, quality and quantity and levels, keeping view the different kinds of institutions already operating and those that are emerging, over a period of time, i.e. for the next ten years;

* Education and training facilities for various levels of professional personnel. This includes curriculum design and development, faculty development, supporting facilities in terms of hardware and software, as aids in teaching and learning processes and other physical facilities for the conducive development of professional personnel;

* Programme of financial grants in terms of scholarships, fellowships and other incentives to attract persons with talents, motivation, and interest in and aptitude for the information field;

* Placement of personnel, turned out by educational and training institutions with promising career opportunities;

* Award/Reward system for best professional performance;

* Continuing education programmes for information personnel, operating at different points and at various levels, for keeping abreast of current developments in the field;

* Facilities for fundamental and applied research in all aspects of information handling, thereby creating new knowledge and technical competence.

The aim should be to build up a cadre of information scientists and technologists with diverse specialisation and skills, operating with perfect harmony and cohesion, to organise and develop high quality information service.

While all the facets mentioned above deserve equal attention, only curriculum development alone is discussed here.

3 Current Situation

Today the heterogenous variety of groups of information personnel is emerging with somewhat parochial interests, magnified prejudices and political influences. Some of the groups involved in information handling, directly or indirectly, are as follows:

Librarians	Computer Specialists	Specialists in
Documentalists	System Designers	MIS
Information specialists	System analysts	Advertisements

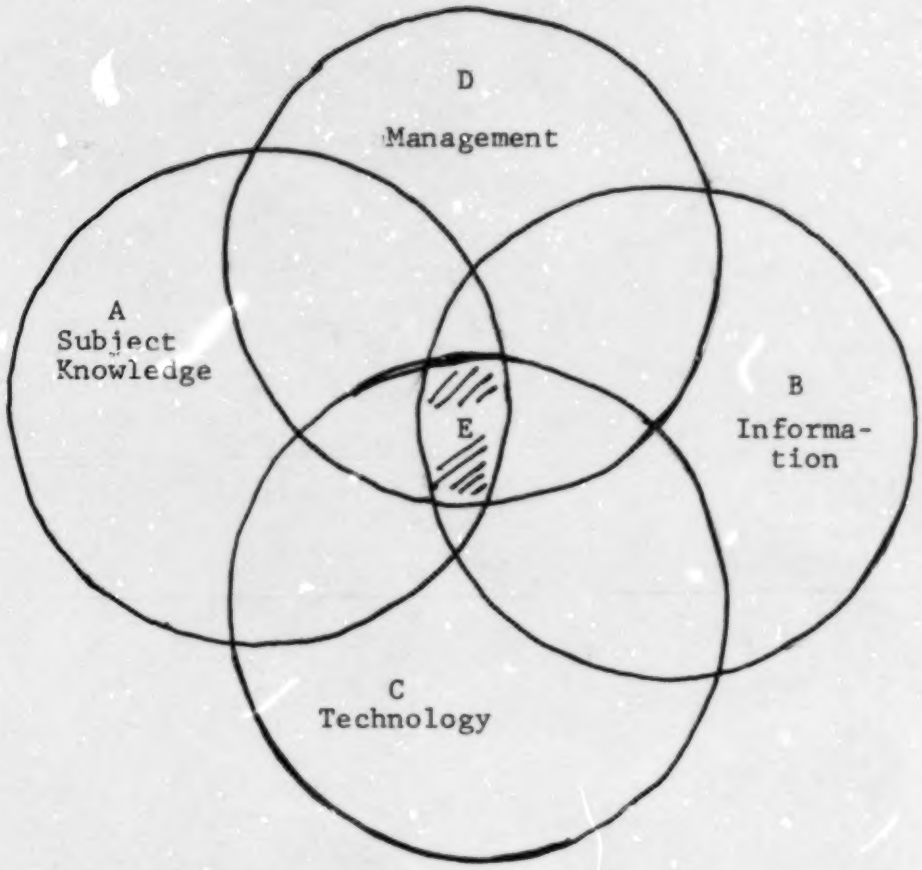
Information analysts
Editors
Publishers
Distributors
System Managers
System Operators
Programmers
Extension workers in
Agriculture
Industry, etc.
Liaison and Public Relations Officers
Operations Research and such others
Media specialists (Mass Communication)
Newspaper journalists
Broadcasting and Television specialists
Cognitive scientists involved in research that includes
Artificial Intelligence
Biocybernetics
Communication etc.
Sociologists and Economists studying the information phenomenon and their impacts.

In such an amorphous situation, with various groups involved in information handling with different characteristics, planning for manpower development becomes a complex issue. There is, however, a need to delimit the scope of the information area, setting definite parameters for the purpose of effectiveness, keeping in view the relevance to contexts. One dominant view is that the information profession is basically involved in a service oriented activity. Many disciplines, indeed, do make the multi-

disciplinary subject of information science, but the service aspect that is central forms the distinct focus. Another aspect that is basic to this approach is that information professionals are involved in an intellectual activity, concerned with recorded public information/knowledge, irrespective of the physical medium (microforms, computer-readable and other types of non paper-print forms) by which information is processed and channelled. No matter what specialisation one has, the core activity is an intellectual activity and the goal is service. This conceptual unity of interest and purpose in information handling problems, should harmonise any sectarian attitude and eventually lead to integrate the approaches of the different groups.

4 Anticipated Position

As information science is emerging as an amalgam of several disciplines, it is conceived here as an in tersection of four circles as shown below, which essentially represent the specialisations required of an information professional:



Circle A represents the subject field, an intimate knowledge of which is basic to efficient service. But the insight required for information handling, is not normally available in any formal courses even at master's degree levels in different subjects. Therefore special efforts are required to supplement the knowledge acquired through such formal courses, to get a comprehensive view of the subject and to keep abreast of the current developments in the field with particular emphasis on information handling. The requirements are to

i) Have a thorough familiarity with the literature of the fiels(s) including the history and development of subject(s), a good understanding of the different concepts intrinsic to the field(s), their interrelationships, essential in communication with specialists and handling information service requirements at different levels.

ii) Knowledge of tools and techniques for acquiring knowledge of subject mainly required to handling information. The objective here is not to be a subject specialist, but a literature specialist of the subject, to serve as an excellent partner ora resource person with groups that are involved in investigating a research problem or applying knowledge for developmental purposes.

iii) Expertise in the techniques and methodologies of acquiring knowledge of subject.

Circle B represents the area of information which includes the study of the information phenomena, generation, transfer and dissemination, users, sources, systems, information storage and retrieval, products and services and management of information systems and services centres and others. Technical writing with a focus on condensation, consolidation and repackaging is also included here as a part of the skill required in written communication. Emphasis

on oral presentation is equally important.

Circle C represents the area of technology which includes the integrating technologies of computer, telecommunication and media. This area has an importance and great significance as technology is introducing almost a total revolution in human communication.

Circle D represents management science essential to manage large libraries, information centres, information programmes and such other activities. This is shown as a separate entity largely because specialised knowledge of general management principals and practice are essential and relevant to management of information.

An information professional must have an exposure to all the four fields represented by circles ABCD and in fact, represent 'B', the intersection of the four circles.

Depending on the type of institutions, such as academic libraries, special libraries (which are conceived as information resource centres), documentation and information centres, information analysis centres, computer based information systems and programmes, data banks and others, the emphasis on the four areas represented by circles A,B,C&D may vary.

But an exposure to all the four circles, perhaps with different measures, is necessary. Public Libraries are institutions which are distinctly different from the other types of information istitutions, having a social purpose besides being purvayers of information. The orientation required for operating public libraries which call for a knowledge of areas in social, cultural, economic and other fields, connected with public library activities, in addition to the inculcation of community centre concepts, is highly essential in a dominantly illiterate society.

5. Design of a Curriculum Model

It is with this backdrop and a general approach a curriculum model has been designed for Insdoc's training course, leading to Associateship in Information Science. This is an advanced level course, most of the participants usually having a master's degree in the physical, natural or social science. Candidates with a professional degree in library science or experience in library and information work or computer programming are represented in the course. Insdoc is a national institution of thirty years standing, providing a good practical context for training and learning. Insdoc is basically an information service

institution, meeting the needs of scientific and technical community in the country. Training has been one of its activities almost from its inception. The regular course was introduced in 1964, initially known as a course in Documentation and Reprography. The course was renamed with its new design in 1977 as a course in Information Science.

The basic objectives of the course:

To give the students i) an understanding and appreciation of the vital and pervasive role of information as an essential input in all developmental activities; ii) the necessary skills in designing, operating and managing an information system pertaining to any field such as R&D, Business and Industry, Government Departments, Academic Institutions, etc; iii) a thorough insight into all the techniques of information handling, including the application of information technology; and iv) full comprehension of the global nature of information for proper cooperation, coordination and exchange amount countries.

The curriculum is organised in four broad groups:

a) Core subjects

b) Electives

c) Project work and dissertation

d) Supporting subjects

A brief overview of the syllabus is given below:

Paper 1: Information, Communication and Society

This paper aims to give a broad perspective of the information field as a whole, examining its role and functions in different contextx of national developments, its expanding dimensions and implications on political, economic, social and cultural aspects. The generation, growth, flow, transfer and use of information including the barriers in communication and measurement of information and its dynamics are studied. The impact of technology introducing a total revolution in the information transfer process is examined in some detail. The emerging discipline of information science with its multidisciplinary features are comprehended. The paper also focuses attention on organisational and institutional aspects of information handling including programmes and activities at the local, regional, national and international levels, development of information systems with the organisational structure; and integrating all this into a network. Typical examples of these are illustrated by the information systems developing in India and also those that have developed in UK, USA, USSR and Japan. International organisations such as

Unesco-PGI (UNISIST), FID, IFLA with their programmes, engaged in promoting information systems and services through out the world also are studied.

Paper 2: Technical Writing

This aims at developing writing skills in English in the trainees, exposing them to basic principles and contemporary practices of technical writing, as exemplified in typical publications such as journal articles, conference papers, research and technical reports. While basic skills are imparted in writing for primary publications, emphasis is increasingly on technical writing related to review papers, articles, state-of-art reports, trend reports and such others. Imparting editorial skills also forms part of the overall objectives.

Paper 3: Information Sources and Media

This has the objective of providing an overall view of the information sources required at all stages of the information transfer process and making the students fully aware of, conversant with, and acquiring necessary skills to handle different types of sources, particularly document sources, vis-a-vis the information needs of users communities. As the development of new technologies is making a tremendous impact on the sources of information, an attempt is made to expose the students

to the role of these newer media and their effect on the information sources. Focus is also given to institutional and human resources as information sources. The scope of the paper includes numerical data also.

The sources in major disciplines in science and technology are used to illustrate the above points.

Paper 4: Information Processing and Organisation

This focuses attention on the skills to be imparted in processing documentary information for the design, preparation and production of searchable index files. Basic principles and practices of storage and retrieval of information contained in documents, pre-coordinate and post-coorinate models for the preparation of index files using various types of index languages, construction and development of thesauri and other types of index languages with their specific functions in storage and search, file organisation, maintenance and updating, searching techniques and strategies, and other management aspects including evaluation of index systems are the main contents of this paper. Automatic indexing and computerised data files and programme packages for information retrieval, processing and organisation of statistical and other types of numerical data and their organisation, storage and retrieval are included.

Paper 5: Information Services

The objective of this is to familiarise the student with the most important and representative samples of information services and products. Emphasis is given on the nature of information needs and the characteristics of the relevant service designed to meet the particular information need.

This, the focus is on the understanding of the information needs and requirements of the user community. That is why the paper starts with the topic of user community and its needs. Once the nature of such needs are well understood, it becomes easier to appreciate the logic of most of the prevailing services and also to design new types of services.

Apart from emphasis on current awareness services in general, particular emphasis is being given on new types of services, such as compilation of research-in-progress type of publications, announcement of forthcoming meetings, etc. Another important area has been in the provision of back-up services, such as document copying services and translation services. Apart from the organisational aspects, such services are also considered in the context of the philosophy of Universal Availability of Publications and the need of resource sharing.

Paper 6 & 7: Information Technology

These two papers aim to provide a thorough insight into all the techniques of information handling including the application of information technology. While paper 6 lays emphasis on the theoretical aspects, paper 7 anchors on practical application. Exposure to telecommunication technology, reprographic and printing and a-v techniques are given.

Paper 8: Information System/Centre Management

This aims to expose the participants to essential principles and practices of general management and their application to library and information systems and services. Management of projects, programmes and activities is also included in the study of the subject.

Paper 9: Electives

The aim of this paper is to provide an opportunity to students to chose a subject area among the areas that are offered as electives and get a fairly detailed overview of the background of the field, the literature and other sources of the field, specialised services and products required, etc. to build up skills

in designing and developing an information system for the chosen field. The objective is to be achieved through project reports.

Paper 10: Dissertation/Project Report

This aims to give a thorough grinding in the methodology of preparing a dissertation on a chosen topic, ging experience in terms of data collection, analysis of the data and their organisation, interpretation, evaluation, conclusion and generalisation; the efforts involved in preparing the manuscript for proper presentation. All of these require the development of personal files and their utilisation for drafting the dissertation.

Supporting subjects

The objectives of offering broad exposures to subjects such as research methodology, mathematics, OR, statistics, etc. are to acquaint the students with basic and useful knowledge in those areas, which are increasingly used as methods for study and applications in the information field. Here again, some idea of the information field so that his specialisation and the methods of application to the information field could be properly dovetailed.

6 Conclusion

The foregoing brief account, spelling out in some detail, the model curriculum designed and developed at Insdoc, bespeaks to a certain extent, the approach and philosophy of viewing information science as an intersection of four distinct areas namely subject knowledge, information handling, information technology and management.

There is no specific paper on the methodology for the acquisition of knowledge in a given subject. However our experience very definitely indicate that the capability to acquire subject knowledge will necessarily have to form part of the curriculum. At present students that undergo the course do have a background in a specific subject but quite often is inadequate for the purpose of information work. A very detailed course content has to be evolved for a specific paper on the area and subject background for information handling.

The success of any education or training programme in information science will have to necessarily based on i) to meet a specific information need in a given context, ii) a flexible and dynamic approach that would always be necessary to adapt a course to changing contexts. Therefore there should be no finality about course design which could stand for an indefinite period.

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